

CLAIMS

1. A temperature control device comprising:

a plurality of cell parts (2) holding microorganisms or cells; and

5 a heater (1) and a cooling unit (7) making control of temperatures inside said cell parts,

wherein said control is corrected by using an ambient temperature (T1).

2. The temperature control device according to claim 1, wherein said heater

10 (1) comprises:

a first heater line (11; 11, 12) and a second heater line (14; 13);

a plurality of first thermal conductors (31; 31, 32) provided for said first heater line; and

15 a plurality of second thermal conductors (32, 33; 33) provided for said second heater line.

3. The temperature control device according to claim 1, wherein said heater

(1) comprises:

a first heater line (11) and a second heater line (14);

20 a plurality of first thermal conductors (31) provided for said first heater line; and

a plurality of second thermal conductors (32, 33) provided for said second heater line,

25 wherein said first thermal conductor and said second thermal conductor are controlled to different temperatures from each other.

4. The temperature control device according to claim 1, wherein said heater (1) comprises:

a first heater line (11, 12) and a second heater line (13);

5 a plurality of first thermal conductors (31, 32) provided for said first heater line;

a plurality of second thermal conductors (33) provided for said second heater line;

a first thermometer (41, 42) provided for one of said first thermal conductors;

and

10 a second thermometer (43) provided for one of said second thermal conductors, said first thermal conductors being equal in thermal capacity,

said second thermal conductors being equal in thermal capacity, and

said first thermal conductors and said second thermal conductors being different from each other in thermal capacity.

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5. The temperature control device according to claim 1, further comprising:

a thermometer (45) measuring an ambient temperature (T1);

a storage unit (5) storing calibration data; and

20 a control unit (6) setting a target value (T0) for said temperatures inside said cell parts, and controlling said heater (1) and said cooling unit (7) with a second target value (T2) that is obtained based on said target value (T0) and said calibration data in accordance with said ambient temperature.

25 6. The temperature control device according to claim 5, wherein said heater (1) comprises:

a first heater line (11; 11, 12) and a second heater line (14; 13);

a plurality of first thermal conductors (31; 31, 32) provided for said first heater line; and

a plurality of second thermal conductors (32, 33; 33) provided for said second
5 heater line.

7. The temperature control device according to claim 5, wherein said heater (1) comprises:

a first heater line (11) and a second heater line (14);

10 a plurality of first thermal conductors (31) provided for said first heater line; and

a plurality of second thermal conductors (32, 33) provided for said second heater line,

wherein said first thermal conductor and said second thermal conductor are
15 controlled to different temperatures from each other.

8. The temperature control device according to claim 5, wherein said heater (1) comprises:

a first heater line (11, 12) and a second heater line (13);

20 a plurality of first thermal conductors (31, 32) provided for said first heater line;

a plurality of second thermal conductors (33) provided for said second heater line;

a first thermometer (41, 42) provided for one of said first thermal conductors; and

25 a second thermometer (43) provided for one of said second thermal conductors,

said first thermal conductors being equal in thermal capacity,
said second thermal conductors being equal in thermal capacity, and
said first thermal conductors and said second thermal conductors being different
from each other in thermal capacity.

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9. The temperature control device according to claim 1, further comprising:
a thermometer (45) measuring an ambient temperature (T1);
a control unit (6) setting a target value (T0) for said temperatures inside said
cell parts; and
10 a calculation unit, wherein
said calculation unit calculates a second target value (T2) from said ambient
temperature and said target value (T0), and
said control unit controls said heater (1) and said cooling unit (7) with said
second target value (T2).

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10. The temperature control device according to claim 9, wherein said heater
(1) comprises:
a first heater line (11; 11, 12) and a second heater line (14; 13);
a plurality of first thermal conductors (31; 31, 32) provided for said first heater
20 line; and
a plurality of second thermal conductors (32, 33; 33) provided for said second
heater line.

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11. The temperature control device according to claim 9, wherein said heater
(1) comprises:

a first heater line (11) and a second heater line (14);

a plurality of first thermal conductors (31) provided for said first heater line;

and

a plurality of second thermal conductors (32, 33) provided for said second

5 heater line,

wherein said first thermal conductor and said second thermal conductor are controlled to different temperatures from each other.

12. The temperature control device according to claim 9, wherein said heater
10 (1) comprises:

a first heater line (11, 12) and a second heater line (13);

a plurality of first thermal conductors (31, 32) provided for said first heater line;

a plurality of second thermal conductors (33) provided for said second heater
line;

15 a first thermometer (41, 42) provided for one of said first thermal conductors;
and

a second thermometer (43) provided for one of said second thermal conductors,
said first thermal conductors being equal in thermal capacity,

said second thermal conductors being equal in thermal capacity, and

20 said first thermal conductors and said second thermal conductors being different
from each other in thermal capacity.

13. The temperature control device according to claim 12, wherein

said second heater line (13) is provided on an outer edge side of said heater than

25 said first heater line (11, 12) is,

each of said first thermal conductors (31, 32) includes a pair of heat blocks (3) provided on both sides of said first heater line, and

each of said second thermal conductors (33) includes one heat block (3) provided for said second heater line on the side of said first heater line.

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14. The temperature control device according to any one of claims 1 to 13, further comprising:

a sensor for each of said cell parts (2), said sensor measuring a measurement value that varies depending on metabolism of said microorganisms or cells.

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